SAMPLE APPROVED PROTOCOLS

EMERGENCY MEDICAL CARE OF THE PULSELESS NON-BREATHING PATIENT USING SEMI- OR FULLY-AUTOMATED EXTERNAL DEFIBRILLATION (AED)

PROVIDER NAME: _____ PROVIDER NO.60 - _____

I. AED Use
- A. Take body substance isolation precautions en route to scene
- B. Consider ALS backup.
- C. Preparation for transport of patient should begin immediately as staffing allows.
- D. Assuming no on-scene ALS, the patient should be transported when one of the following has occurred:
    1. The patient regains a pulse.
    2. Six shocks have been delivered, including shocks delivered by Public Access Defibrillator (PAD).
    3. The machine gives three consecutive messages (separated by one minute of CPR) that no shock is advised.
- E. All contact with patient must be avoided during analysis of rhythm and/or delivery of shock(s).
- F. Automated external defibrillation is ***not*** used in cardiac arrest ***in children under 1 year of age.*** A Pediatric capable[2] AED is preferred for age 1-8 years. However, a standard AED may be used if it is the only one available.
- G. Automated external defibrillators cannot analyze rhythm properly when emergency vehicle is in motion. It is not safe to defibrillate in a moving vehicle.

II. AED Application by Age
- A. Age <1 year
    1. Continue CPR, ***do not apply AED***.
    2. Consider intubation, if trained to do so [3,4,5]
    3. Identify possible causes [H's & T's]
    4. Establish IV/IO, if trained to do so
    5. Consider contacting medical control for recommendations for continued resuscitation (i.e. Sudden Infant Death Syndrome [SIDS] case).
    6. Initiate rapid transport if indicated
- B. Age 1 through 8 years
    1. **Perform CPR for 1 min before undertaking other actions** [1]
    2. Apply AED, using a pediatric capable AED if available [2]
        a. If PAD is the only pediatric capable AED available, continue using it
        b. If only standard AED available, it may be applied. It is recommended to place the patches in anterior-posterior positions to avoid arcing.
- C. Age > 8 years
    1. Apply standard AED

III. Resuscitation
- A. Multiple rescuers
    1. Arrive on scene and perform initial assessment.
    2. Stop CPR if in progress.
    3. Verify pulselessness and apnea.
    4. Have partner resume CPR.
    5. If Public Access Defibrillation (PAD) utilized prior to your arrival, consider switching from PAD to your defibrillator.
    6. Attach and activate defibrillator.
    7. Stop CPR.
    8. Clear patient.

9. Initiate analysis of rhythm:
    a. If machine advises shock:
        i. Deliver shock.
        ii. Re-analyze rhythm without touching patient
        iii. If machine advises shock, deliver second shock.
        iv. Re-analyze rhythm without touching patient.
        v. If machine advises shock, deliver third shock.
        vi. Check pulse
            a. If pulse, check breathing
                1. If breathing adequately, give high concentration oxygen by non-rebreather mask and transport promptly.
                2. If not breathing adequately, artificially ventilate with high concentration oxygen, transport promptly (consider insertion of an advanced airway here).
            b. If no pulse, resume CPR for one minute
                1. As appropriate, consider insertion of an advanced airway.
                2. Stop CPR.
                3. Re-analyze rhythm.
                4. If shock advised, repeat one cycle of up to three stacked shocks.
                5. Transport promptly after two sets of three shocks [6]
    b. If after any rhythm analysis the machine advises no shock, check pulse
        i. If pulse is present, check breathing.
            a. If breathing adequately give high concentration oxygen by non-rebreather mask, transport promptly.
            b. If not breathing adequately, artificially ventilate with high concentration oxygen, transport promptly (consider insertion of an advanced airway here).
        ii. If no pulse, resume CPR for one minute.
            a. Consider insertion of an advanced airway here [3,4,5]
            b. Identify possible causes [H's & T's]
            c. Repeat rhythm analysis.
                1. If shock advised, deliver if necessary, up to two sets of three stacked shocks separated by one minute of CPR. [6]
                2. If no shock advised and no pulse resume CPR for 1 minute.
                3. Analyze rhythm third time.
                    a. If shock advised, deliver if necessary, up to two sets of three stacked shocks separated by one minute of CPR (if transport is impossible [i.e. ambulance not at scene] continue sequence of 1 minute CPR followed by rhythm analysis and up to three shocks as indicated. or until transport becomes possible). [6,7]
                    b. If no shock advised, resume CPR and transport promptly.
10. Persistent shockable rhythm and no available ALS backup
    a. After a maximum of six shocks on scene, (three initial, three after one minute of CPR), **transport patient promptly**. If transport is impossible

[i.e. ambulance not at scene] continue the sequence of three (3) stacked shocks followed by one (1) minute of CPR for as long as shockable rhythm persists or until transport becomes possible). [6,7]

B. Single rescuer
   1. Defibrillation is initial step in adults.[1] CPR should not be performed prior to rhythm analysis unless AED application is delayed.
   2. Stop CPR if in progress.
   3. Perform initial assessment.
   4. Assure pulselessness and apnea.
   5. If Public Access Defibrillation (PAD) utilized prior to your arrival, consider switching from the PAD to your defibrillator
   6. Attach and activate defibrillator.
   7. Initiate analysis of rhythm.
   8. Deliver shock(s) as advised.
   9. Follow protocol for multiple rescuer resuscitation.

C. Restart protocol if pulses are lost
D. Establish IV/IO if trained to do so.

Pediatric Notes:

1. If rescuer is alone, perform CPR for one minute before undertaking other actions.
2. "Pediatric capable" refers to an AED capable of an energy setting of <50 J.
3. The decision for tracheal intubation versus continued BVM ventilation depends on several factors, including:
   A. Local protocols and medical control instructions
   B. Anticipated transport time
   C. Adequacy of BVM ventilation
   D. Need to protect the airway
4. Consider ALS assistance if intubation is not within scope of practice.
5. A non-visualized airway can be used in children of sufficient height.
6. If communication with a physician cannot be obtained, or is lost, additional shocks may be given as indicated.
7. If transport is impossible [i.e. ambulance not at scene], continue the sequence of three stacked shocks followed by one minute of CPR for as long as shockable rhythm persists or until transport becomes possible.

Special Considerations:

- Most pediatric pulseless arrests are due to respiratory arrest.
- If resuscitative efforts are unsuccessful, reevaluate oxygenation and ventilation.
- When sudden unexpected death of an infant occurs:
  - Contact Medical Control for possibility that the body should remain at the scene for Coroner investigation.
  - Compassionate interaction with a grieving family may be helpful to them.

Possible Causes of Pediatric Pulseless Arrest: H's & T's

- Hypoxemia
- Hypovolemia
- Hypothermia
- Hyper/Hypokalemia
- H+ (acidosis)
- Tension pneumothorax
- Tamponade-cardiac
- Toxins(poisons)/Tablets(drugs)
- Thromboembolism

Document

- Clinical assessment
- AED use
- Resuscitative measures and response
- Medications given and response
- Communication with medical control

Approved by: _____ Medical Director (Print)

_____ Medical Director (Signature)

_____ Date